**SUBJECT: Communicable and vector borne diseases**

**TOPIC: Airborne diseases:**

**SUB-TOPIC: Whooping Cough (Pertussis).**

**Broad objective:** By the end of the lesson, the participants will acquire knowledge and skills on management of a patient with Whooping cough (pertussis).

**Specific objectives:** By the end of the lesson, the participants will be able to:

* Define whooping cough.
* Outline the mode of transmission of whooping cough
* Describe the pathogenesis of whooping cough.
* State the clinical features of whooping cough at various stages.
* Explain the management of whooping cough.
* Describe the prevention and control of whooping cough.

**Airborne diseases**.

These are diseases which can spread when an infected person coughs, sneezes, talks, or expels nasal and throat secretions into the air. Viruses/bacteria’s take flight, hang in the air or land on other people or surfaces.

Their main route of transmission is the air you breathe. The organism which causes these diseases enter the body through the respiratory tract. Most respiratory tract infection are airborne diseases.

Examples of these diseases include: Measles, Whooping cough, Mumps, Chicken pox, Rubella, Meningococcal Meningitis, TB e.t.c

1. **Whooping cough (Pertussis).**

This is an acute infectious disease of the respiratory tract caused by bacteria of the genus bordetella called **Bordetella pertussis.** Whooping cough is also known as **pertusssis**

Characteristics of the bacteria includes; It is a Gram-Negative Bacilli, aerobe, pathogenic, encapsulate, non-motile and non -spore forming.

The disease causes production of very sticky mucus that blocks the lumen of the bronchioles. This leads to a persistent cough in an attempt to get rid of the mucus. The cough is present in typical attacks which end in the characteristics of “**whoop”**

Mortality from whooping cough is highest in children aged one year or less.

**Mode of transmission.**

It is spread by droplets from secretions of the upper respiratory tract of an infected person through; coughing, sneezing, laughing, talking e.t.c.

The disease can also be spread by direct contact with freshly contaminated objects e.g door handles, tables, patients bed rails, telephone handles, lap-tops etc.

**Pathogenesis of whooping cough.**

The microorganisms enter the respiratory tract with inspired air and attaches to the ciliated cell. The organism colonizes the structures of the upper and lower respiratory tract and produces toxins which stimulates the immune response and resulting into the inflammation of the respiratory mucosa.

There is patchy necrosis and mucus secretion increases which causes ciliary action to decrease. Mucopurulent exudate forms leading to bronchial obstruction.

Cough reflex is the only mechanism for clearing secretions. Hence a patient presents with paroxysms.

Atelectasis, bronchiectasis and other complications arise.

**Clinical Features**

The incubation period of the disease ranges from **six to ten days** after infection, after which the clinical features appear. In babies aged three months or less, there is **no 'whoop'** experienced during coughing. As such the diagnosis may be missed. The characteristic 'whoop' is seen in children **over three months** of age.

**Whooping cough progresses through three stages as follows.**

**Catarrhal Stage**

This stage begins after the incubation period and lasts for one to two weeks. The patient has slight fever and a cough that is troublesome especially at night. The cough often ends with vomiting. Gradually the cough becomes paroxysmal in character with a running nose.

**Paroxysmal Stage**

During this stage, the fever and the running nose disappear but the cough becomes more troublesome. The cough occurs in paroxysms. The child coughs with his mouth open and tongue protruding out. This severe persistent cough causes cyanosis, protrusion of eyeballs, congestion of face and neck veins, sweating, and exhaustion. The patient may vomit suddenly, pass urine or stool, bleed from the nose, bite their tongue or suffer convulsions.

**Convalescent Stage**

Most patients improve gradually within one to three weeks, but some patients may continue to have paroxysms of coughing for months. If whooping cough is not treated it can lead to a number of **complications:**

* Inguinal hernia.
* Broncho-pneumonia
* Collapse of the lung (atelectasis)
* Rectal prolapse
* Sub-conjunctival haemorrhage
* Pneumothorax
* Retinal detachment (which may lead to blindness) etc.

**Diagnosis**

Can be made from history of the characteristic whoop in older children.

Observing the child cough. Clinical symptoms (paroxysmal cough with a 'whoop').

Through a postnasal swab for culture and sensitivity of bordetella pertussis.

Increased WBC count of over 30,000 per cubic mm with marked lymphocytosis may also suggest diagnosis. (Normal range of WBC is 5000 - 10000) this may vary from one laboratory to the other.

**Remember: Young babies do not 'whoop'**.

**Management**

The management of whooping cough requires supportive treatment such as good nutrition, plenty of fluid intake and avoidance of factors which provoke coughing. Broad-spectrum antibiotics are also given to kill the pertussis organisms. However, antibiotic therapy does not shorten the paroxysmal stage of the disease.

You should also avoid giving sedatives and cough suppressants because they may make the illness worse.

**Prevention and Control.**

**AIM**: preventing droplets from being inhaled by others.

The principles of communicable disease control methods can be applied. These include;

**Attacking the source;** treatment of infected persons.

**Interrupt transmission;** personal hygiene, good and adequate housing, behaviour change, immunization and environmental health.

**Protecting the host;** immunization, PPE e.g use of masks, and good nutrition.

**Nurses’ role**: Health messages to individuals and community.

The **BEST** way to control whooping cough is by high immunization coverage. To prevent whooping cough three doses of the pentavalent vaccine, starting at the age of six weeks is currently being administered. It is given at intervals of four weeks.

**Why is the administration of the vaccine started so early?**

This is because very little or no passive immunity is inherited from the mother, yet it is in the first three months of life that whooping cough has a high mortality rate.

**References.**

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